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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
COBURN, CORBETT B	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/765,975
Filing Date: January 29, 2004
Appellant(s): MIYAGAWA ET AL.

Bruce Bernstein
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9 July 2009 appealing from the Office action mailed 4 December 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,313,838	Deering	11-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4-7, 9 & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering (US Patent Number 6,313,838).

Claims 1 & 7: Deering teaches forming a plurality of frame images constituting the video game sequentially and displaying the plurality of formed frame images by switching the frame images from a frame buffer. Deering teaches predicting formation time periods of said plurality of frame images when said frame images are individually formed. (Col 3, 53-60) Deering teaches determining game progress to be made by said frame images, in dependence upon the formation time periods of said frame images, as predicted. Deering teaches a constant frame rate. Therefore, the game progress is dependent on the amount of time that it takes to form the image (i.e., the frame rate). Deering teaches use of the system in video games. Video games inherently include changing said determined game progress (i.e., character movement rates or direction) in response to an operation input by a player.

The choice of rate of tempo of game music, rate of formation of frame images & determined game progress depending on the command issued in a video game is a matter of design choice that is well within the level of ordinary skill in the art.

Claims 2 & 7: The predicted formation time periods of said plurality of frame images are expressed in units of a frame image display period of a shortest period of switching display of said frame images – i.e., the frame rate.

Claims 4, 5, 9 & 10: Examiner considers the predetermined clock signal of claims 4, 5, 9 & 10 to refer to the video synchronization signals that are inherent in video monitors.

(10) Response to Argument

Background

Perhaps the best way to understand the present invention is to consider the animated cartoons one may have seen. After all, the videogame is essentially an animated cartoon that is partially controlled by the player. The concepts used in animation are directly applicable to the videogame art.

In animation a series of still pictures are shown at such a rate that the human eye cannot detect that the pictures are being changed. The brain merges this series of pictures into a single picture that may, or may not, appear to move. If the images contain a series of slight changes in the images, the figures in the picture appear to move. If the pictures do not change, there is no perceived movement. If the changes are too great, the movement is disjointed & the brain perceives the change between pictures & the animation is not effective. In cartoon or movie

animation, each of these still pictures is called a cel. In computer animation each still picture is called a frame.

In a cartoon, it is possible to speed up or slow down the movement of the image. The reader may have seen Bugs Bunny cartoons in which Bugs shows a slow motion replay. In order to slow down the perceived motion, the animators put several identical cels into the film between images that change. Thus if each letter represents a cel and a normal speed image is represented by A-B-C, then a slow motion image would be A-A-A-B-B-B-C-C-C. Naturally, the more repeated cels, the slower the motion. Note that the animator cannot stop the film & show the same frame for an extended length of time. The film moves at a constant rate.

As noted above, the images are changed at a constant rate. In the case of a movie or television, this rate is 60 cels or frames per second. Thus, the A-B-C representation is not entirely accurate. If the image were displayed only 1/60th of a second, it could not be perceived. Therefore, each of the cels would actually be repeated at the "normal" speed. Therefore, each letter in the representations above should be understood to represent a certain number of repeated frames or cels.

In order to do a "fast forward", the animator may reduce the number of repeated pictures or omit intermediate pictures. Reducing the number of repeated pictures clearly has its limits – if too few pictures are repeated, the image won't be perceived at all. Therefore, animators may choose to delete intermediate pictures. That is, A-B-C may be rendered as A-C or even A'-C' (i.e., A & C with fewer than normal repeated pictures but still enough to be perceptible). This gives the animator three options for rendering A-B-C in "fast forward": A'-B'-C', A-C or A'-C'. Each will show the movement of the image a little faster than the previous representation.

The same concepts apply to videogames. Videogames display a series of images (or frames) to achieve the same effects that the film animator. The videogame programmer must work with the same type of constraints regarding the number of images shown per second. This is known as the refresh rate of the video display.

In addition to these constraints, videogame programmers must deal with a restraint that film animators are not faced with. If a film animator takes all day to form an image, it doesn't matter because the images are not shown as they are created. They are collected & filmed for display at a later date.

But a videogame's images are displayed as they are formed. What happens is that the image is formed in a frame buffer (a segment of fast memory usually located on a videogame's image processing card). As one frame buffer is being displayed, another is being constructed by the computer's processor. If frames are shown before they are fully constructed, the images do not come out right. (Imagine an image that has the top part of a tree & the lower half is someone's leg & foot.) Therefore, a game program must take into account the image formation time when determining how to animate a scene in a videogame. Deering shows that this fact was known in the art at the time of Appellant's invention.

In a videogame it is critical to match the game progress with the animation shown on the screen. A simple example will suffice to show how critical this is. Suppose a game character is walking along a passage in a maze. Another passage opens into the current passage at some point ahead of the current player location. Unknown to the player, a monster lurks immediately around the corner in this other passage. (See Fig 1, below.)

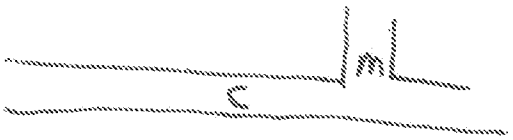

Fig 1

There are three possible scenarios:

(1) If the image displayed is lags the game progress, the player may find himself being attacked by a monster he cannot see. That is, the player sees the corridor as if he was in the C position in Fig 1, but he is actually standing in front of the M. From the game player's standpoint, this would be disastrous. The game would be a failure since on one would want to play it.

(2) If the image displayed outstrips game progress, the player may see the monster he has not reached; turn to attack it & run into a wall. In other words, the player who is actually in the C position would believe he is standing in front of the M. Turning to attack the monster would make the character bump into the wall. This might not be such a disaster to the player, but it would still make the game unplayable.

(3) If the image displayed is synchronized with the game progress, the game plays as expected. The player does not see the monster until C moves in front of M and can react to the monster in the appropriate manner. This is absolutely necessary for a successful game.

These three scenarios are clear to anyone who practices the videogame designer's art. It is clear to any practitioner in the art that game progress & image display must be synchronized. And because image display is dependent on the time it takes to build an image in the frame

buffer, game progress must be related to image generation time. These are basic facts that anyone in the art must recognize. No reference is required to teach this.

It should also be noted that a videogame requires the action on the screen to correspond to the player's input. In Pong, the player twists the knob & the paddle moves. If videos do not respond to player input, they are not videogames – they are movies.

So it is part of every videogame designer's function to determine what responses will be made to every input. Clearly, this is an integral part of the videogame design process.

Appellant has claimed that the system predicts the formation time of video images and determines the game progress based on this prediction. As noted above, this is a requirement for all successful videogame designs. Deering teaches "A software program configured to efficiently estimate rendering times…" (Abstract) Deering attempts to reduce image detail if the estimated rendering time is too long. (Fig 19A) But it would have been clear to one of ordinary skill that if the image detail is reduced past a certain threshold, the graphics will no longer be usable. Therefore, it might be necessary to slow game progress to match the achievable graphics. In other words, a game programmer might put an upper limit on the character's walking or running speed in order to keep from degrading the graphics to an unacceptable level.

A game designer designing a maze game such as that depicted in Fig 1 above would have to ask himself if he wanted to allow the player to control the speed of the character's movement across the screen. In other words, does he include RUN & WALK commands? If the game designer includes a RUN command, then the game would progress faster. If a WALK command is included, the game would progress slower. The game designer might also include FAST FORWARD & SLOW MOTION commands. (Note that Appellant has never clearly made the

distinction between RUN/FAST FORWARD in his claims. The "first predetermined instruction" may be either. The "second predetermined instruction is equally vague.) These are choices that every game designer would make.

Appellant has also claimed changing the tempo of music & speed on travel in response to player input. This is clearly a matter of design choice. Any game designer is faced with a choice of music to play in any particular situation. Does the videogame play the same music all the time? Is there one tune to be played while the player runs & another while the player walks? Does the game play the same music at different tempos? These are all decisions that every game designer must make. They are all within the level of ordinary skill & will all lead to predictable results.

Clearly, if a game designer can play one song, at one tempo, he can choose to play another song at a different tempo or even the same song at a different tempo. Just as clearly, it is within the level of ordinary skill to change songs and to make those changes based on player input. If it were not within the level of ordinary skill to change music, then all videogames would have the same song.

Essentially, the Appellant's invention consists of making a series of design choices that must be made by all videogame designers & working within the constraints imposed on all videogames. The choices are all within the level of ordinary skill & all lead to predictable results.

Response to Specific Arguments

A. Appellant argues that increasing or decreasing the rate of frame formations is not obvious.

As discussed above, in a "slow motion" animation, the same image is repeated several times in succession. This is a decrease in the rate of frame formation since the same frame (i.e., the same image) is shown for a longer period of time. When a "fast forward" animation is shown, the same image is repeated fewer times & there is an increase in the rate of frame production. As discussed above, this is how animation works. Appellant is simply claiming the method used by all animators.

Applicant's discussion of the benefits of a slow-motion or fast-forward command is intended use. Furthermore it is not commensurate in scope with the claims.

1. Appellant argues that increasing/decreasing the frame rate is not inherent in videogames.

Examiner agrees. It is, however, inherent in fast-forward & slow-motion animation. Not every game has to have fast-forward or slow-motion. This is a design choice made by any game designer. But if a game designer chooses to have fast-forward or slow-motion, the game designer has no choice but to implement them in the manner described above.

Appellant also says that changing the determined game progress based on character movement rates or directions in response to operation input by the player is not inherent – though he actually fails to present arguments on the point. It is apparent that Examiner has not made the statement clear enough.

A character is under the control of the player in a videogame. A player is therefore in control of the game progress. If, for example, the player in Fig 1 above decides that instead of continuing to the right of the drawing, he will provide input that causes the character to turn around and go back to the left; this change in direction changes the game progress. In that case, the character does not meet the monster. Thus the claimed feature (i.e., determining the game progress based on movement direction in response to player input) is inherent in all videogames.

2. Appellant argues that Deering does not render increasing/decreasing the frame rate obvious.

Again, Examiner agrees. As pointed out above, increasing/decreasing the frame generation rate is inherent in implementing the fast-forward/slow-motion animation. What Deering teaches is that it was known at the time of the invention to estimate the time of formation of a frame. Deering is concerned with synchronicity. Deering also teaches a method of increasing the rate of frame formation which one of ordinary skill would recognize could be used to achieve a fast-forward effect.

Appellant's arguments concerning the minimum frame rate are slightly misleading. Every television or monitor has a refresh rate or minimum image display rate. In other words, a television may display 60 individual images per second. Deering is concerned with making sure that no half-formed images are displayed. This is only tangentially related to the fast-forward/slow-motion command, but if the fast-forward command were to become a super-fast-forward command, Deering would explain how to increase the rate of frame generation while ensuring that no half-formed images were displayed.

Appellant also says that Deering does not teach changing the tempo of the music. As noted above, this is simply a matter of design choice. Game designers must choose the music that will be played under any given circumstances in a game. The choice of music & its tempo is well within the level of ordinary skill & would lead to predictable results -- the chosen song would be played at the chosen tempo. Again, Appellant is attempting to patent a commonplace element of the art.

B. Appellant argues that changing the music tempo is not obvious.

As noted previously, every game designer must decide what music to play under any given circumstance in the game. A videogame has much in common with a movie & it may be instructive to consider the sound track to a movie. When the outlaws are chasing the stagecoach, a director may choose to play a stirring melody at a fast tempo. When the cowboy is confronted by the villain, a director may choose a different piece of music with a different tempo. When the cowboy kisses the girl & rids off into the sunset, yet a different piece of music with yet a different tempo may be chosen. The same applies to videogames.

It is well within the level of ordinary skill to choose different music with different tempos for videogames. If it were not, then all videogames would have the same music. Clearly, it is within the level of ordinary skill to choose to change music based on player input. These are basic design choices that confront any designer of a videogame. The results of making these choices are certainly predictable – the chosen music is played at the appropriate time. There is no stated problem to be solved by changing music & tempo. This is the epitome of a design choice.

1. Appellant argues that changing the music tempo is not inherent to videogames.

Examiner agrees. As pointed out in the rejection and in the arguments, changing the tempo is a matter of design choice. If a game designer may choose something, then it is clearly not inherent.

As pointed out above, a game designer may choose to set the music tempo in response to player input. Appellant argues that setting the tempo in response to an input is distinguishable selecting a tempo when designing a game. This is clearly erroneous. Videogames do not program themselves. They respond to selected inputs in a manner determined by the game designer at the time that the game was designed. If the game designer chooses to have one piece of music play in one circumstance & another play when something else happens, that is what is programmed into the game. These decisions are made by the game programmer at the time of game design.

Let us take Fig 1 above as an example. Suppose the game designer has one piece of music to be played for walking down the corridor; another that is played when the character is fighting a monster; and a third to be played when the player runs away. Each piece may have a different tempo. It is clear that the player's input will cause the situation to change & the music would change accordingly. The point is that the existence of these three pieces of music & the decision of when they are to be played is a matter of design choice made by the game designer and programmed into the game. Similarly if the designer chooses fast-forward/slow-motion commands, he may certainly choose to have different music played in response thereto.

2. Appellant argues that Deering does not teach changing the tempo.

Examiner has never contended that it did. Examiner has made it clear that changing the music 7 its tempo is purely a matter of design choice.

C. Appellant states that the rejection of claim 1 is improper.

Appellant argues that Examiner has not considered the entire claim. Examiner disagrees. Examiner has shown that having a fast-forward/slow-motion command is a matter of design choice as is increasing/decreasing tempo in response to that command. Examiner has shown that increasing/decreasing the frame formation rate is necessary to implementing the fast-forward/slow motion command.

D. Appellant states that the rejection of claims 2 & 7 is improper.

Appellant says that the rejection appears merely to recite the claim language. This is not the case. Appellant is claiming that the predicted formation time period is expressed in a particular "unit". This unit is the shortest period for switching display of frame images. Claim 7 has similar language. The shortest time for switching display of frame images has a name. It is called the "frame rate" and is built into the display hardware.

Again, it may be instructive to think about television. A television displays 60 images (or frames) a second. It has a frame rate of $1/60^{th}$ of a second. That is the shortest for switching display of frame images. A television cannot switch display of frame images at $1/100^{th}$ of a second. Nor does a television switch images at a slower rate. Therefore, it makes no sense to express the predicted formation time in any units other than the frame rate.

E. Appellant contends that the rejection of claims 4, 5, 9 & 10 is improper.

Appellant merely states that the Examiner bears the burden of establishing a *prima facie* case. Examiner contends that he has met that burden.

1 & 2. Appellant contends that the examiner has not set forth a prima facie case in rejecting claims 4 & 9.

Claims 4 & 9 are the same as claim 1, with a minor change. The images are displayed in synchronization with a clock signal. But as pointed out, this clock signal is the video synchronization signal that is inherent to all video monitors. Video monitors & televisions all have a synchronization signal. When the signal is given, the electron beam of a television (or its equivalent in LCD or LED displays) goes to the top of the screen & starts displaying a new image. This defines the frame rate discussed in section D above. Appellant is merely claiming that images are displayed when the screen is ready to display a new image & that the image formation time is estimated in units that correspond to the monitor's frame rate. Taken as a whole, it is clear that Examiner has set forth a *prima facie* case in rejecting claim 4.

3. Appellant states that the rejection of claims 4, 5, 9 & 10 are improperly grouped.

Appellant does not make any arguments concerning patentability. He merely argues that the office action does not take on the approved form. However, Appellant bases his argument on a mistaken interpretation of the MPEP. The claims would be improperly grouped if different art were applied to the claims. If, for instance, claims 4 & 5 where rejected using reference A & claims 9 & 10 were rejected using references A & B, it would be improper to group them together. However, in this case, all claims are rejected using the same references & the same grounds of rejection. Therefore the grouping is proper.

F. Appellant states that Examiner failed to address claim 6.

Appellant is incorrect -- though it appears like Examiner didn't. Examiner included the claim in the statement of the rejection – which is all that is required by the MPEP as long as the limitations are addressed in the rejection. Claim 6 is the method that corresponds to the program claimed in claim 1. Therefore all of the claim limitations are addressed. Furthermore, it is clear from the rest of the rejection that the grouping of claims 1 & 7 in the rejection is a typographical error. The grouping should have read "**Claims 1 & 6:**". Appellant does not argue that claim 6 is patentable, but merely relies on a typographical error.

Summary

Appellant has made two design choices that are well within the level of ordinary skill. Appellant has decided to include fast-forward/slow-motion commands (though he has never clearly claimed them) & has chosen to change the music tempo to correspond to these commands. The rest of his claims are either a direct result of making these choices or are part of every videogame design. If a game designer chooses to implement fast-forward or slow motion commands, then the designer must make the claimed changes to the image frame generation rates. And all successful game designers must estimate the time of image formation in order to synchronize the image with the game progress. As shown above, this is a critical element of game design.

Essentially, Appellant has taken well-known elements & has claimed them as his own. There is nothing claimed that is not well within the level of ordinary skill. There is nothing that can be said to produce an even remotely unpredictable result. And as the courts have held in *KSR* & again in *Boston Scientific v. Cordis*, "If a person of ordinary skill can implement a

predictable variation, §103 likely bars it's patentability." Therefore, the rejection of the claims under 35 USC §103 should be affirmed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Corbett Coburn/
Primary Examiner
AU 3714

Conferees:

/Dmitry Suhol/

Supervisory Patent Examiner, Art Unit 3714

/Peter D. Vo/

Supervisory Patent Examiner, Art Unit 3714